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THE MUSHROOM GROWERS'
ASSOCIATION

MGA

BULLETIN

JUNE, 1957 · NUMBER 90

CONTENTS

Editorial : Again the Cry 191
Executive Committee 192
Market Returns Compared 193
Starling "Survives" Peak Heat 194
Publicity Bouquets—and Ideas 194
WORLD'S PRESS DIGEST 196
Southport, 1957 198
METHODS OF PREPARING COMPOST IN THE UNITED STATES AND SOME UNDERLYING "PRINCIPLES" : Dr. E. B. Lambert 201
Contamination Threat to Europe's Largest Mushroom Farm ... 210
Publicity Paper Bags 212
Eire Mushroom Exports to U.K. Up 214
"On This Vexed Question of Mushroom Gender" 216
Royal Show—Norwich 216
Publicity Subscribers : 1957 List 217
MGA Members visit Dublin 218
Dublin Visit—Pictures 219
Last Month's Publicity Contributions... 220
Small Advertisements 224

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17 JUN 1957

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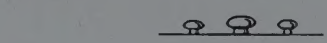

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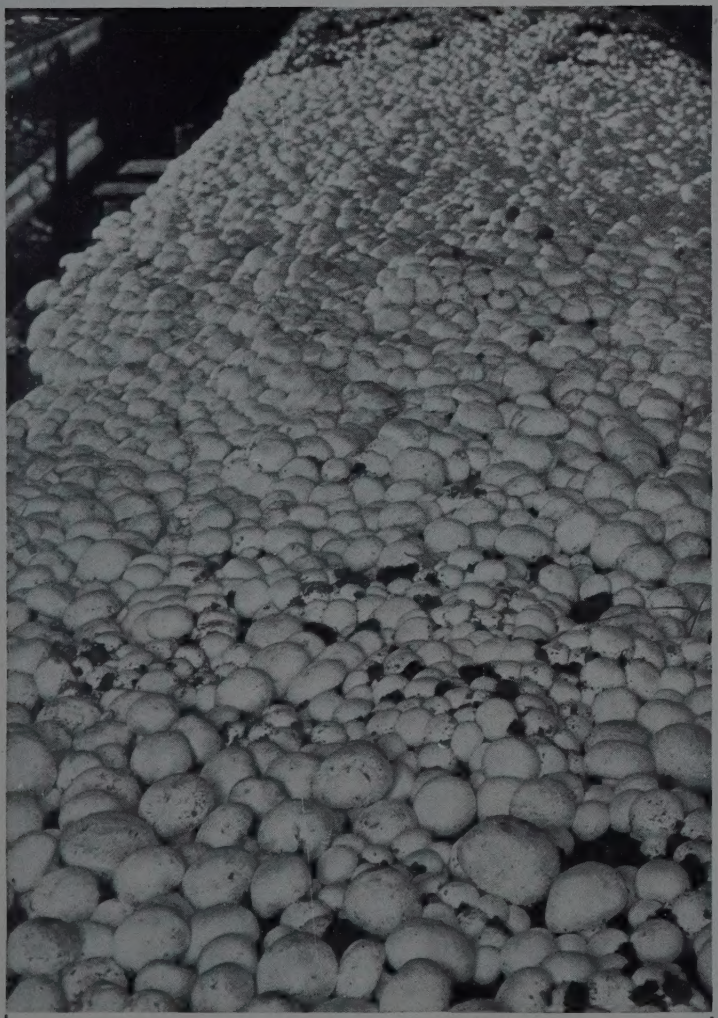

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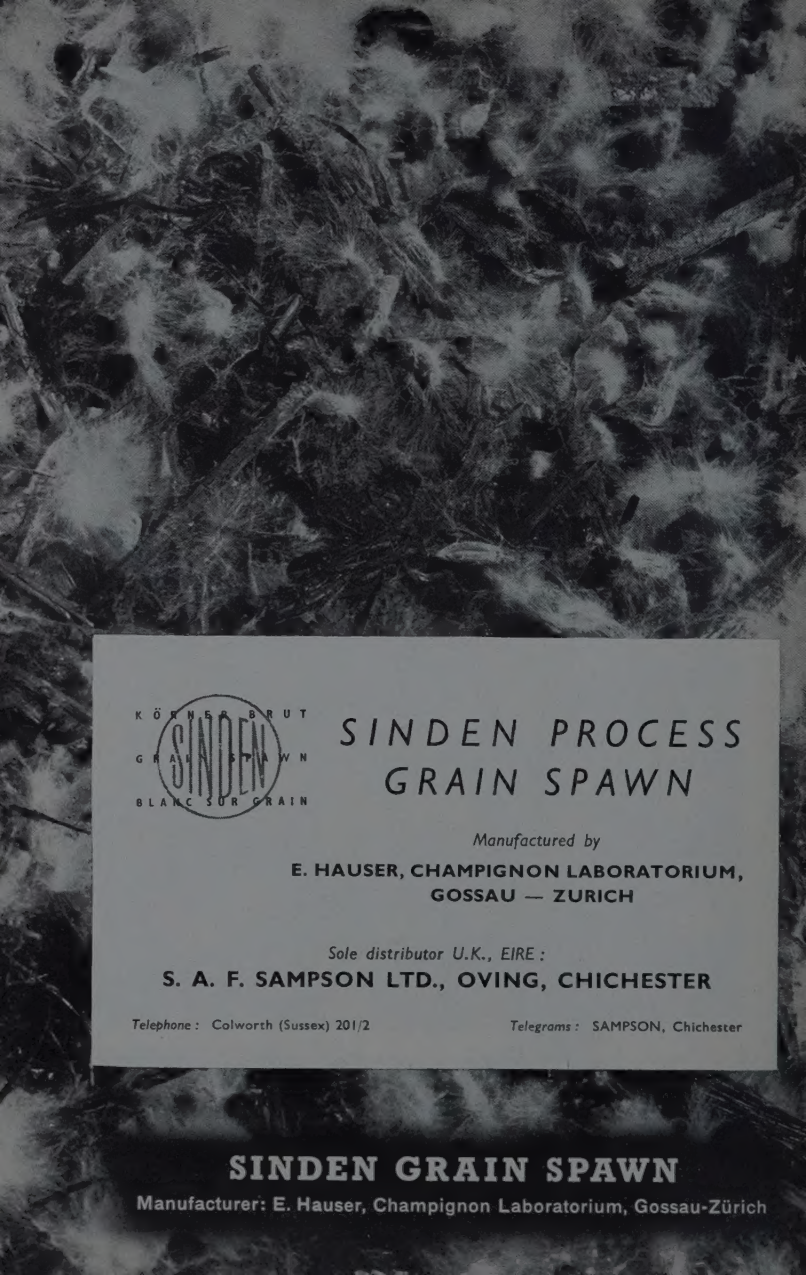

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The
MGA BULLETIN

JUNE - 1957
NUMBER 90

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No responsibility can be accepted by the Editor, the Editorial Board, or the Mushroom Growers' Association for statements made or views expressed in this Bulletin, or for any advertisements included in this publication.

EDITORIAL

AGAIN THE CRY

Why not! After all, our advertisers maintain their solid support year in and year out and it is right and proper that at least once a year this page should be devoted to calling attention to the fact.

True it is that we, as a publication, do have a somewhat specialised readership since, in the main, every reader is a potential customer for it is a simple truth that only those interested in the production of mushrooms read us month in and month out. True it is again that advertisers, in the highly competitive market of to-day, must bring their wares and services bang in front of the producer in order to maintain and expand existing business; but that should not stop any of us from expressing thanks to those who, by their support, enable us to emerge at regular intervals and in reasonable garb, filled with some facts, figures and opinions, some scientific and some practical. We are, as a publication, not free from our critics—what worthwhile publication really is?—but by and large we try to say what we believe to be right and what we believe to be true and long may it continue thus. Any other course would mean sure and certain death. It might be delayed for some time, but the end would be no less inevitable.

This is your publication. Each and everyone of you, as a member of the MGA, has a stake in the Bulletin and each and everyone has a right to his say—should he so wish. As far as possible—unhappily it is not always possible for obvious reasons—your articles and your letters are used from time to time, as they should be.

But remember when the Bulletin arrives each month—sometimes late but never absent—that it is you, by your memberships and the advertisers, by their support, not forgetting those guardian angels, the Editorial Board, who all contribute to this well being. See to it then that, wherever and whenever possible, you shop with our advertisers, shop with our Publicity supporters and shop with our members. The tighter we all are—as an organisation—the stronger, more virile and more useful we shall be.

WRA

EXECUTIVE COMMITTEE

At a meeting of the Executive Committee held on 26th April, in London, Mr. G. V. Allen (Chairman), warmly welcomed two new members of the Committee, Mr. A. J. Berry and Mr. P. B. Stanley-Evans, and also congratulated Mr. J. Stewart-Wood on being re-elected to the Committee after an absence of a year.

As Chairman of the **Southport** (Refresher Course) Sub-committee, Mr. F. Bleazard, said, there had been some alterations in the proposed programme since the Committee had last met. It was agreed that the alterations suggested made for a better balanced programme with full attention paid to the practical side of mushroom growing which, Mr. Allen said, he had been particularly anxious to see. The Secretary stated that the response to the invitations to exhibit machinery had not been very encouraging so far. Earlier suggestions had included a " Brains Trust " as part of the programme, but a proposal by the organising committee to have two or three short talks instead was approved.

Publicity: It was reported that good progress was being made with the publicity bag scheme and plans were discussed to extend the coverage to the North and other parts of the country. The MGA, in co-operation with the Gas Council, would be holding a mushroom exhibition at the Tea Centre, in Lower Regent Street, London, for the week 9th—14th September.

1958 Exhibition and Conference: The Secretary was instructed to make a provisional booking for the holding of the 1958 Exhibition and Conference at Bournemouth during the first week in October.

Research: Mr. F. C. Atkins reported that the Research Sub-committee had approved the plans for the mushroom buildings at the Glasshouse Crops Research Institute and thought that building would commence within the next few months. The first experimental crop at Stockbridge House was progressing satisfactorily.

The Editorial Board of the *Bulletin* (Messrs. Atkins, Middlebrook and Dr. R. L. Edwards) was re-appointed, and the following sub-committees were also appointed:—Publicity, Area Representation and Postal Voting, Research, Southport, 1958 Exhibition and Conference. Two new Sub-committees were also appointed, one to fully investigate the position regarding the importation of Du Pont Parzate and the other to report on a suggested new insurance cover for MGA members.

Following a report by the Secretary that a number of enquiries were received from time to time from would-be growers, he was instructed to reply to such enquiries with advice on the best type of literature to study and to tender further advice, only in the event of an application for membership being received. The next meeting was fixed for 3rd July.

MARKET RETURNS COMPARED

Just how mushroom growers fare in other countries, when it comes to selling mushrooms on either the normal wholesale markets or to canners, is a question which is often asked when growers gather together.

Below is a table, somewhat incomplete, which has been compiled from information kindly sent to the *Bulletin* by members from overseas with additional information obtained from the A.M.I. News of America.

It may well be that growers, in addition to those in the United Kingdom, will not altogether agree with the figures given.

The Editor wishes to make it quite clear that the somewhat high figures returned for United Kingdom mushrooms are taken from the weekly market reports of the Ministry of Agriculture which are compiled from reports from 174 prescribed towns in England and Wales from which returns are required under the Corn Returns Act, 1882.

If you have anything to say about the facts and figures herewith recorded, the Editor will be pleased to hear from you and to publish your observations, always providing that such observations are printable.

The figures recorded are prices obtained in either January or February of this year. In the case of the United Kingdom (including N. Ireland) they concern only the January returns.

MARKET RETURNS (per lb.)

Country	1st qual.	2nd qual.	For canning	Remarks
Germany ..	3/7½	—	3/-	Growers selling direct to consumer obtain up to 4/8 per lb.
Holland ..	3/-	—	3/-	Market not yet specialised for fresh mushrooms, the bulk being purchased for export to Belgium for canning.
Belgium ..	3/-	2/6	2/7	1st quality white are grown in special houses and marketed with cut stalks. 2nd quality white and opens (which make as little as 1/2½d. per lb.) are marketed with stalks complete.
Denmark ..	—	1/9½	1/8	All marketed with stalks complete and with soil.
France ..	3/7½	2/6½	2/1	
U.S.A. ..	3/3	2/10	—	February average.
U. Kingdom	4/1½	3/5	2/- to 3/6	January average.
***N. Ireland**	3/6	2 11½	—	January average.

*The Editor apologises for segregating N. Ireland from the United Kingdom but the price returns are so dealt with. It can be safely assumed that the prices for mushrooms from Eire tally with those from N. Ireland (see p. 214.)

STARLING "SURVIVES" PEAK HEAT

From time to time disillusioned mushroom growers express their doubts about the value of peak-heating for erradication of such pests as mites and eelworms. Can anyone beat this? After peak-heating (to 125° F. air temperature instead of my usual 140°) and cooling down I went into the house to check compost temperatures for spawning. To my horror I found inside a starling, very much alive and apparently quite as upset at seeing me as I was at seeing it. Guess how!

TOM FIGGIS.

P.S.—*This is what probably happened :*

The starling (page 194) had fallen down a disused chimney making a small hole in the aluminium foil covering the chimney opening—apparently immediately after the peak heat.—T.F.

PUBLICITY BOUQUETS—AND IDEAS

We are now distributing the paper bags in our area through a local wholesaler and the reaction from the retailers has been very promising. We have been told that there has been a considerable interest shown by the public and they are on the whole most interested in the recipes printed on the bag. This must surely be both a cheap and efficient way to entice the housewife to become Mushroom conscious and we feel that every effort should be made by the Publicity Committee to persuade members to place a standing order for these bags. It has also come to our notice the price is considerably less than most retailers pay. Surely here is an excellent opportunity for exploiting something to our advantage. We are planning to distribute 5,000 bags per week in an area of about 8 square miles and at the same time are negotiating with the retailers to see if we can supply them regularly. Would it not be possible to have a nation-wide scheme, somewhat on these lines, run by the Publicity Committee, whom we would like to congratulate on the excellent way these bags have been produced.

CLIFFORD KING,
Director, Heather Farm Ltd., Woking.

Congratulations on your Publicity Campaign which certainly seems to be producing results. I am not enamoured by the bag: there is far too much printing on it. Look at ' Mr. Cube ' for effective advertising—one point at a time is as much as the public can or will look at. I think you will need a much better design with few words and big type to make the bag attractive even to traders. Carry on the good work.

W. S. BELCHER, Wokingham.

ED.—*The Publicity Committee did consider the few words, large type bag design but eventually plumped for the present bag on the grounds that a great deal of written matter on a bag was unusual and would therefore attract attention.*

Doing things by halves?

Of course you want to get as good a return as possible from your mushroom crops. The selling must therefore be undertaken by an efficient, well-established organisation. By people who understand and whose reputation stands high in the important markets. For full value consign to B & G— the largest distributors of mushrooms in the country.

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According to a recent survey by the American Management Association, the American businessman spends five hours a day—one of them at home—reading reports, correspondence, books and business magazines. The bulk of this tedium is relieved by the MGA's new service, which we have called . . . . . .

WORLD'S PRESS DIGEST

On account of the small number of orders which have been received for *Mushroom Science* 3, and in order to avoid a loss on the printing costs, the Committee has fixed the price at 30/-. This important volume will shortly be published.

Bulletin of the French Federation, April/57.

Arrivals of mushrooms have not been heavy this week and all clear rapidly, with inquiry showing that their popularity seems to be expanding even further.

Fruit Trades' Journal, April 6/57.

Mushrooms are steady, with only a few 4s. 6d. per lb. now being taken.

Grower, April 6/57.

Lighter supplies and colder weather have definitely helped to improve the mushrooms trade, where outstanding buttons meet a strong inquiry, while opens also sell fast. *Fruit Trades' Journal*, April 13/57.

Mushroom trade is easier with heavier arrivals and warmer weather.

Fruit Trades' Journal, April 20/57.

The true field mushroom, especially when it has reached the dark brown stage, is much too tender to cope with modern civilization. Cultivated mushrooms are grown from spawn deliberately selected from the harder, more vigorous, and tougher strains. These can stand up to the handling, packing and travelling to which most of them are subjected. S. W. Page in *Everybody's*, April 6/57.

At the Lord Chancellor's Court on Tuesday, 19th March, Mr. Justice Harman granted to Mr. J. D. Allpress of Chatteris an order restraining Dan Jones & Sons (Porth) Ltd. from using printed polythene bags " so designed as to be practically identical to those used by Mr. Allpress for his prepacked potatoes." Mr. Allpress was awarded an agreed sum of £100 as damages, and the defendant was ordered to pay the plaintiff's costs. Under the terms of the order the defendant must undertake to destroy or deliver up the bags complained of. This case is the first of its kind arising from the prepacking of horticultural produce.

Produce Packaging, April/57.

Continuous indication of moisture in granular, powdered or fibrous material during manufacture is possible with a V.H.F. meter, claimed to be the world's first. It is known as the Shaw Moisture Monitor. Moisture content from 0-100 per cent. is visible on a meter dial or chart recorder. Price of equipment with meter dial is £100, with chart recorder £320. *Scope*, April/57.

During the course of a number of experiments at Marquette University, Milwaukee, designed to perfect a control of mites (apparently *Tarsonemus pallidus* Banks), it was observed that elimination of mites also reduced growth of *Botrytis cinerea* Pers. on *Saintpaulia ionantha* Wendl.

E. S. McDonough & R. J. McGray in *Phytopathology*, February/57.

Basically a forklift, the Versatruk, introduced by Winget Ltd., of Rochester, Kent, quickly converts to a crane or shovel. Power is supplied by 2·4 h.p. petrol engine mounted on a turntable which turns on its own axis through 360°. Price £345 for forklift; crane and shovel attachments extra £5 each. *Scope*, April/57.

Constructed of lightweight aluminium 100 per cent. insulated sections, a walk-in freezer made by Penfold & Partners, consulting engineers, of Victoria Street, London, S.W., can be quickly assembled in any position, indoors or out. Capacity of standard model is 270 cu. ft. *Commercial Grower*, April 5/57.

A new hydraulic hoist, the Glenaldie, has been produced by the Glenaldie Woodworking and Engineering Co. Ltd. Simply and stoutly made from metal tubing, it is mounted on a tractor's normal 3-point linkage and controlled by tractor's hydraulic control. Lifting arm swings upward and sideways through an arc automatically, irrespective of ground angle. Tractor fitted with hoist can also tow trailer at the same time, so that both can draw alongside goods for loading, and lift them direct on to trailer without uncoupling. *Scope*, April/57.

Proposals for setting up a commercial packaging centre in London with the object of helping users to keep in touch with new and improved techniques were approved by the council of the Institute of Packaging at its last meeting.
Packaging News, April/57.

To-day, acre for acre, Britain has the most highly mechanised farms in the world. *Agricultural Review*, Spring/57.

Farmers' and Growers' Industries, Worthing (FARGRO), reported that packing and marketing facilities are to be expanded and a full service of grading and packing provided for mushroom growers. The mushroom unit is in its early stages and a committee of mushroom growers has been formed to assist in its development. Bigger supplies are needed. *Grower*, April 13/57.

The Cowling Group (Cowling Ltd.) has decided to begin prepacking later this year. They hope to begin with the English potato crop during the summer.
Produce Packaging, April/57.

Results of pH determinations are widely used as criteria of soil behaviour, management requirements, and suitability of lands for irrigation development. Interpretation of pH data is sharply limited, however, by the interrelationships of pH with other properties of the system such as calcium activity and soluble salt content. On calcareous soils interpretation of pH data is further complicated by the fact that pH is strongly influenced by the partial pressure of carbon dioxide in the system. C. V. Cole (U.S. Dept. of Agriculture) on *Soil Science*, February/57.

There is considerable variation in the results obtained in trials. Under experimental conditions described, growth experiments with tomatoes in small pots require about 90 plants per treatment. Similar numbers of cucumber and many more antirrhinum plants would be required.
N. G. Alvey in *Plant & Soil* 6 (4), 1955.

It is now possible to modify the natural micro-organisms, to control the temperature and to influence the course of fermentation (of wine) by means of the pressure of carbon dioxide. P. Dupuy in *Chemistry & Industry* (Paris).

Tenterden Mushrooms, Kent, enclose a publicity leaflet with two recipes in each basket of mushrooms. There is a series of leaflets, each with different recipes, and customers are encouraged to collect the set. It's business. *Grower*, May 4/57.

Cost of sterilising soil by radiation would be high, but by 1980 it could be a really commercial venture. Mushroom composts and the like would form a suitable medium for this treatment.
Dr. H. J. M. Bowen, of Harwell Atomic Energy Research Establishment (Irradiation Branch), reported in *Nurseryman & Seedsman*, April 25/57.

On a nursery in West Sussex I have seen what promises to be a very successful trial. Tomatoes are planted in Tom-pots or 9-in. whalehides which are stood on a generous layer of spent mushroom compost. The borders seem to have been dug to leave the surface as rough as possible before the compost is laid on. This appears to have the desired effect of permitting abundant and healthy root development.
Correspondent in *Nurseryman & Seedsman*, May 2/57.

More news of enterprise. A big firm of mushroom growers is sending tinned supplies to Jamaica, where they are making very good prices. *Grower*, April 20/57.

The most effective course (to control Phorids) appears to be frequent fumigation with malathion or diazinon, to keep on killing flies as often as possible, and application of aerosols by compressor and spray gun is the cheapest way. During the crucial spawn-running period, treatments are made almost daily in late summer and autumn when flies are abundant, and once or twice weekly during cropping, and of course less frequently when flies are few. Surface dusting or spraying of beds with any insecticide does not seem to prevent egg laying and the development of serious infestations.
B. D. Moreton, in a two-page article in *Grower*, April 20/57.

During 1954 screw-worms were eradicated from Curacao by releasing large numbers of male insects which had been sterilized by gamma rays.
R. C. Bushland, E. F. Knipling and A. W. Lindquist in *Proceedings* Int. Conf. peaceful uses atomic energy (12) 1955.

Mushrooms in Butter! A world-famous Swedish delicacy. Sliced or unsliced, as desired. No waste. Tins approximately 3 oz. Three for 12s. Post paid Shilling Coffee Co. Ltd. (Advert.). *Sunday Times*, April 21/57.

A chimney structure tapering towards the top contains a mass of manure supported on a grate formed of several conveyor screws stretching across the base. By means of these screws, manure is continually removed from the base, and is conveyed by a flight conveyor to the top of the chimney and deposited back by another screw conveyor. Air is continuously blown through the manure mass. By this procedure, rapid and complete composting of the raw manure is carried out without excessive temperature rise due to microbial action. (British Patent 748,297. 27th July, 1953). *Journal of Food & Agriculture*, April/57.

References:

Agriculture, H.M.S.L., York House, Kingsway, London, W.C.2.
AMI News, 20 West State Street, Avondale, Pennsylvania, U.S.A.
B. & G. Review, 27 St. James Street, Covent Garden Market, London, W.C.2.
Biological Abstracts, University of Pennsylvania, Philadephia 4, Pa., USA.
Business, 109/119 Waterloo Road, London, S.E.1.
Commercial Grower, 154 Fleet Street, London, E.C.4.
Digest of Equipment, 3 Cranston Drive, East Didsbury, Manchester 20.
Food Investigation, H.S.M.O., York House, Kingsway, London, W.C.2.
Fruit Trades' Journal, 6/7 Gough Square, Fleet Street, London, E.C.
Grower, 49 Doughty Street, London, W.C.1.
Horticultural Abstracts, Commonwealth Agricultural Bureaux, Farnham Royal.
Mushroom News, W. Darlington & Sons Ltd., Southcourt Road, Worthing, Sussex.
Nature, Macmillan & Co. Ltd., St. Martin's Street, London, W.C.2.
Nurseryman & Seedsman, 62 Doughty Street, London, W.C.1.
Phytopathology, Monumental Printing Co., Baltimore, Maryland, USA.
Produce Packaging, Agriculture House, Knightsbridge, London, S.W.1.
Soil Science, The Williams & Williams Co., Baltimore 2, Maryland, USA.
Transactions of the British Mycological Society, Cambridge University Press, Bentley House, London, N.W.1.

If the journals referred to are generally available, they are most easily obtained by placing an order with your bookseller or stationer.

SOUTHPORT, 1957

Arrangements are nearing completion for the Refresher Course-Conference of the MGA, to be held at the Prince of Wales Hotel, Southport, on 2nd and 3rd October of this year.

Next month, the Bulletin hopes to publish the full programme, which will show that every effort has been made to make the conference —part practical and part scientific—as interesting as possible.

The sub-committee making the arrangements (Messrs. F. Bleazard, F. C. Atkins and S. Middlebrook) have gone to considerable trouble in getting together a balanced panel of speakers, whose subjects will range over a wide field connected with the cultivated mushroom.

Members of the MGA will welcome the decision of the Executive Committee, on the recommendation of the sub-committee, not to make any charge at all to members, but non-members of the MGA wishing to attend will be required to pay 5 guineas. Members who wish to bring either a partner or an employee to any or all of the lectures may do so, again without charge, but the member concerned will be asked to nominate whom they wish to be present and admission will be by ticket only. The decision to make no charge to members—although the staging of this Refresher Course will cost a considerable amount of money—has only been made possible by the recent increase in subscriptions.

Finally, please do not write for further details yet. They will be published long, long before the event. WRA

Dear Sirs,

At the request of your Mr. Wood, we have much pleasure in enclosing some data covering a complete year of cropping, at which we are not displeased.

We feel that your spawn and laboratory test and advice service are the two main contributing factors towards good cropping. To acknowledge this and thank you most sincerely is the least we can do.

For the advisory service we would like, in particular, to record special thanks to your Mr. Wood, who has always been most patient, helpful and enlightening.

Yours faithfully,

THIS LETTER & TABLE ARE AVAILABLE FOR INSPECTION AT OUR OFFICES

House No.	Wks. Crp'd	Date Emptied	Output lb.	Output oz.	Supplement	House No.	Wks. Crp'd	Date Emptied	Output lb.	Output oz.	Supplement
2	10	12.1.56	3	0¼	P	8	11	19.7.56	2	2½	P(Short)
7	11	25.1.56	3	0	P/A(short)	4	11	2.8.56	3	3	P
3	11	14.2.56	2	7¼	A	9	11	16.8.56	3	2¾	P
8	10	21.2.56	2	4¾	S	5	11	30.8.56	2	12¼	A
4	11	14.3.56	2	1	S	10	11	13.9.56	2	12	P
9	11	27.3.56	2	9	A	1	11	27.9.56	2	14	P
5	10	12.4.56	2	7	S	6	11	11.10.56	2	9	P
10	10	25.4.56	2	7¾	A	2	11	25.10.56	2	15	P
1	9	10.5.56	2	1¼	S	7	11	8.11.56	2	13½	P
6	10	24.5.56	2	9½	P/A	3	11	22.11.56	2	8¾	P
2	11	7.6.56	2	6	P	8	11	6.12.56	3	3	P
7	11	21.6.56	2	13	P	4	11	18.12.56	2	8¼	P
3	11	5.7.56	2	9	P/S	9	11	31.12.56	2	8½	P

The list above represents 26 consecutive crops grown exclusively on Darlington's White Moist Manure Spawn, averaging 2·64 lb. per crop, including 8% stalks, or 2·33 lb. without stalks.

COMMON FACTORS

Spawn, Medium Manure, Gypsum, Copper-Sulphate, Superphosphates, BHC, Chalk (Duncton), Peat (Sorbex), pH around 7·6.

P—Poultrymanure A—Adco M
S—Supplement
(SHORT) Sinden 7 days compost

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METHODS OF PREPARING MUSHROOM COMPOST IN THE UNITED STATES AND SOME UNDERLYING "PRINCIPLES"

By **Dr. E. B. Lambert***

Inquiries made last spring showed that different successful growers often use diverse methods of preparing compost. In attempting to account for these differences it became apparent that there is disagreement on only one or two ideas that may be considered as basic concepts or principles underlying composting and pasteurizing procedures. The differences seemingly arose largely from convenience or expedience rather than principle. In this discussion I shall describe and compare the methods of preparing compost used by several growers, then list a number of concepts that are becoming generally accepted as " principles " underlying our present composting and pasteurizing practices.

Methods Used by Commercial Growers

The information summarized here is based on replies from several growers to simple questions such as: What are the size and shape of your compost heaps? How many turns do you give your compost heaps? At what intervals are they turned? When do you apply the supplements? How long do you pasteurize? What is the cycle of temperatures during pasteurizing? Do you use steam? Do you ventilate during pasteurizing? etc.

Figure 1 shows the procedures followed by eight different growers and also the one used in our pilot plant at Beltsville, Md. These growers include the five largest producers in the United States and one of the largest producers who uses synthetic compost exclusively. The small drawings in the lower centre of each graph give the dimensions of cross-sections of the out-door compost heaps. The curves outside these little drawings represent the cycles of pasteurizing temperatures. The number of days below the graphs and the temperatures at the left side of the graphs apply to these curves and not to the small drawings representing heap dimensions. The continuous lines in the graphs indicate the bed temperatures during pasteurizing and the dotted lines show the air temperatures. The columns of figures headed " Turns " and " Days " show the number of times the compost heaps are turned (mixed) and the particular days in the schedule when the turns were made. The letter " S " signifies the turn and day when the supplements were added. The letter " F " indicates the filling time.

Four of the growers—Butler County Farm, Brandywine, Michigan Mushroom Company, and American Home Foods—turn their compost into moulds that produce heaps with slightly packed straight sides. The dimensions of these heaps and the duration of composting are approximately those recommended by Dr. Sinden.

Grocery Store Products Corp. and the Campbell Soup Company make no attempt to change the dimensions of the heap formed by the

**Pathologist in the Crops Research Division, Agricultural Research Service, U.S. Department of Agriculture.* *This discussion is based on a talk given to a meeting of Mushroom growers at Kennett Square, Pa. in May,* 1956.

compost as it comes from the turning machine. Most small producers also follow this practice. To compensate for larger areas with anaerobic conditions, their turning schedules are usually a few days longer than the schedules of growers using narrow heaps.

Most growers pasteurize for a period ranging from 7 to 10 days. The short pasteurizing period of the Butler County Mushroom Farm is an exceptional practice and probably reflects a rigid adherence to pile dimensions and accurate temperature control during pasteurizing.

There is a peak in temperature indicated in the diagrams for the early part of the pasteurizing curves of several growers. This usually reflects the use of live steam to eradicate pests at the time when overheating the beds will not cause the subsequent invasion of the beds by the olive mould.

The wide heaps used by Knaust Brother (K-B Products) are made up without sub-ventilation. The fact that this company obtains sufficient preparation for pasteurizing in heaps 50 feet wide with two turns in seven days is no doubt due to the use of manure that has been stored in such a way that it is already fairly well broken down when the compost heaps are made up.

The shrinkage in the size of the compost heaps and the longer composting period indicated by Walton and Son are typical of mushroom growers using artificial compost made of corncobs and hay.

Growers who use narrow straight-sided heaps appear to do so principally because they believe compost prepared at temperatures above 150° F. yields more mushrooms than compost prepared at lower temperatures. They also point out that composting in narrow straight heaps eliminates anaerobic conditions and therefore enables them to shorten their pasteurizing period to 3 to 5 days instead of 6 to 10 days.

Growers who compost in heaps more than 8 feet wide are inclined to discount the importance of the concept that high-temperature composting produces higher yields. They prefer wide heaps largely because they find it difficult to prevent the narrow heaps from freezing or becoming too wet or too dry and in some cases because they lack the wharf space necessary to compost in very narrow heaps. These growers prefer to do a large part of their composting during pasteurizing when all parts of the compost are aerated and when temperature and moisture can be easily controlled. To accomplish this they usually pasteurize for a few days longer than growers using very narrow heaps.

A comparison of " C," " D," and " E " in Fig. 2 shows the reduction in anaerobic compost and increase in the relative amount of high temperature compost (above 150° F.) achieved by narrowing the heaps. A comparison of " F " and " H " in Fig. 2 shows the effect of straight sides versus sloping sides. Contrasting " G " with " H " shows the effect of sub-ventilation in narrow heaps with sloping sides.

The need for raising the temperature of the beds to 150° F. during pasteurizing also is a controversial point. We have continued to

Figure 2—Distribution of areas with high temperature (h) and anaerobic areas (a) in compost heaps of different sizes, shapes, and amounts of sub-ventilation.

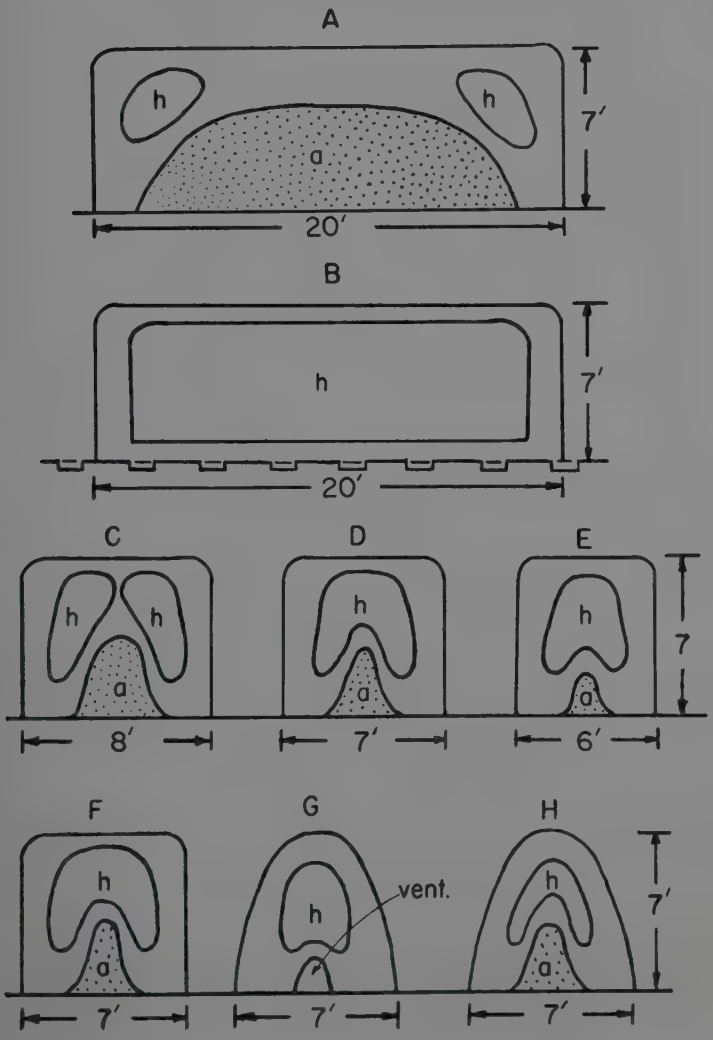
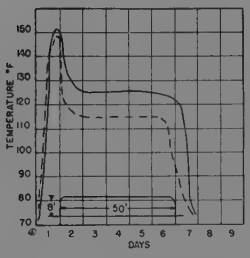


Figure 1—Composting and pasteurizin

K-B PRODUCTS CORPORATION

THE COMPOST IS TURNED TWICE WITHIN SEVEN DAYS, THEN PLACED IN TRAYS

MOISTURE 65—70%

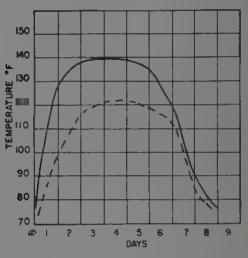


GROCERY STORE PRODUCTS CO.

ONLY A HALF OF THE SUPPLEMENT IS AD AT A TIME

MOISTURE AT FILLING—ABOUT 70%

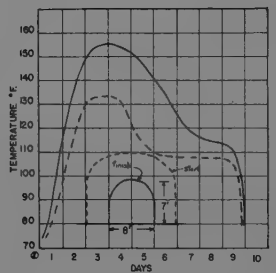
SIDES OF HEAP—NOT COMPACTED



WALTER M. WALTON & SON

SYNTHETIC COMPOST

MOISTURE—AS MUCH AS COMPOST WILL HOLD—NO STEAM USED FOR PASTEURIZATION

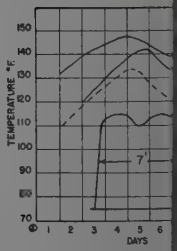


TURNS	DAYS
1	0
2	5
3 S	10
4	15
5	20
6	25

BRANDYWIN

STEAM NECESSARY T IN OCCASIONAL HOUSE

MOISTURE AT FILLING ABOUT 65—70%

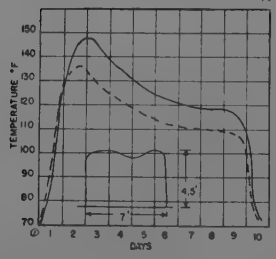


MICHIGAN MUSHROOM COMPANY

MOISTURE

MANURE AND COBS = 72—73%

MANURE = 70—71%

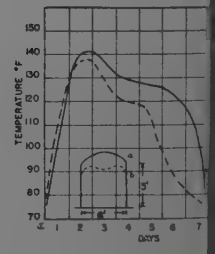


TURNS	DAYS
1 S	1
2	3
3	5
F	7-8

AMERICAN HOME FOO

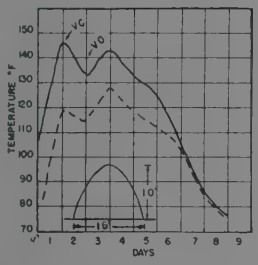
STEAM USED FIRST 28—30 H

TWO FANS RUNNING CONS



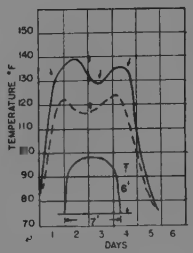
ocedures followed by several growers

TURNS	DAYS
1	0
2	3
3	5
4 S	8
5	10
F	15



BUTLER COUNTY MUSHROOM FARM

THE MOISTURE CONTENT IS BUILT UP AS SOON AS POSSIBLE TO BETWEEN 65—75% AND IS ABOUT 70—75% AT FILLING TIME



HORSE MANURE

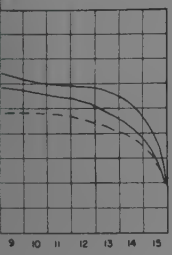
TURNS	DAYS
1	0
2 S	2
3 S	4
4	7
F	9

SYNTHETIC

1	0
2	3
3 S	6
4 S	8
5	11
F	13

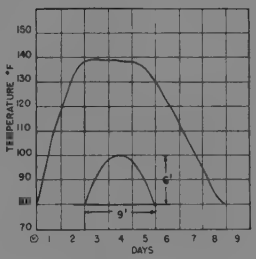
HROOM CO.

STORED DAYS	FRESH TURNS	FRESH DAYS
0	1	0
2	2 S	2
6	3	6
8	4	9
	F	11



CAMPBELL SOUP COMPANY

MOISTURE AT FILL—70%
MOISTURE AT SPAWNING—65%



TURNS	DAYS
1 S	1
2	7
3	12
F	14

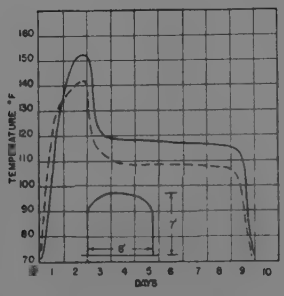
BELTSVILLE EXPER. STATION

THE SIDES OF THE HEAP ARE NOT COMPACTED
THE MOISTURE CONTENT IS BUILT UP AS SOON AS POSSIBLE TO 60—70%
MOISTURE AT FILLING—ABOUT 70%

Y

TURNS	DAYS
1 S	0
2	1
3 S	3
4 F	7
1 S	0
2	1
S	4
4	9
F	10

MOISTURE 65—70%
AT FILLING
A = AFTER BREAK
B = AFTER 3RD
TURN



TURNS	DAYS
1	0
2 S	3
3 S	6
4	10
F	12

experiment with the two-phase system of pasteurizing at Beltsville during the past five years and it may be of some interest to summarize briefly our present view-point.

The evidence obtained so far indicates that 6 hours of pasteurizing above 150° does not significantly improve the nutritional condition of the compost. Likewise we have not been able to confirm our earlier idea that temperatures below 120° in the beds during the second phase of pasteurizing produce better nutritional conditions than temperatures between 130° and 140°. From this we conclude that any advantage from high temperatures early in the pasteurizing must come from better pest control and that the advantages of lower temperatures in the pasteurizing room during the second phase of composting are limited to increasing the comfort of working conditions in these rooms and to making the control of moisture in the beds easier.

We now maintain the air temperature in the lower part of the house at approximately 140° F. instead of 150° during the first phase of pasteurizing and make no effort to reduce the air temperature below 110° in the second phase.

Ventilation of Compost Heaps

If we accept the concept that high temperatures during composting promote high yields, then it would be logical to compost in heaps with sub-ventilation as shown in Figure 2—" B." The lateral dimensions of such heaps would be a matter of choice and convenience. Sub-ventilation could be accomplished without interfering with mechanized turning by providing permanent ventilation channels in the surface of the composting wharf. Perhaps this would be worth a try for growers who are laying down new concrete wharves.

We are experimenting at Beltsville with a device to provide ventilation under compost heaps as the compost comes from the turning machine. This device is essentially an extractable mould that is pulled along behind the turning machine leaving a hole the full length of the heap for ventilation (as shown in Figure 2—G). It appears to be promising for use on concrete wharves but has not yet been sufficiently perfected for recommendation to commercial growers. An alternative method would be to devise a means of providing a vertical separation down the middle of the heap as it comes from the turning machine.

Widely Accepted " Principles " Governing Composting and Pasteurizing

The general objectives of all growers are the same. They compost in outdoor heaps to prepare the material for the particular pasteurizing schedule they have selected and they pasteurize for three main reasons: to eliminate as many pests from their houses as is feasible, to condition the compost so it will tend to resist the invasion of harmful fungi, and to create a nutrient medium with a physical and chemical condition optimum for the growth of mushroom mycelium and the yield of mushrooms.

We have already shown that different growers arrive at these common goals by different routes. Does this mean that good crops

are not dependent upon careful composting and pasteurizing and that the methods used are unimportant? The answer is emphatically No!

Nature has laid down a set of rules that determine the effectiveness of any composting procedure but at the same time are broad enough to include various methods of preparing compost. As our knowledge of these " principles " increases we find ourselves in a better position to improve the composting procedures we are now using.

For example, if we wish to eliminate anaerobic conditions in compost heaps we should be familiar with four basic concepts: (1) Air entering a compost heap, of moderately strawy texture, at a point near its base tends to move upward vertically and diffuse slowly in a horizontal direction, (2) the lateral movement of air usually does not exceed 3 feet, (3) diffusion downward is limited to about 1 foot, and (4) in the centre of a large heap the oxygen supply is consumed about 8 hours after turning. With this information at hand we can readily see that anaerobic conditions can be effectively eliminated by one of three methods: (1) making our heaps 5 or 6 feet wide with straight sides; (2) providing sub-ventilation at 4 or 5 feet intervals; or (3) turning at daily intervals. Also the conditions we can expect in heaps of various size and shape can be predicted (Fig. 2).

During the past 30 years we seem to have made progress in accumulating pieces of information that may be considered principles of this kind. The following are some examples:

1. Suitable composting material must be on hand as a pre-requisite to any successful composting or pasteurizing programme.

2. Manure, as it comes from the turning machine in wedge-shaped heaps about 10 or 12 feet wide and 8 feet high, composts as well as or better than the old low flat heaps 20 feet wide by 3 feet high.

3. All stable manure compost must be supplemented with at least 30 pounds of gypsum per ton of manure to prevent it from becoming gummy.

4. Manure supplemented with gypsum can be safely and advantageously wet to a 70% water content during composting and the sooner this is done the better.

5. Strawy manure should be mixed with a short manure or supplemented with a suitable source of organic nitrogen such as bran, brewers' grains, cottonseed meal, poultry manure, or dried blood. The optimum amounts of the various supplements needed for different types of manure have not yet been determined.

6. No increase in yield can be expected from supplementing a moderately strawy manure with P, K, minor elements, or vitamins.

7. The outdoor composting may be shortened to less than 2 weeks with equally good or better results than obtained from the old 30-day composting schedules.

8. Shortening the total period of composting and pasteurizing within reasonable limits is desirable because it conserves nutrients.

9. Stored manure must be composted a shorter time than fresh manure because it is partially decomposed at the start.

10. Composting and pasteurizing are a continuous inter-dependent process and the grower can produce good crops whether he chooses to do most of the composting outdoors or during pasteurizing.

11. Anaerobic conditions in the compost heap slow up the decomposition and produce harmful compounds that decompose slowly so that five or more days of pasteurizing are required to convert compost that has been anaerobic to a favourable condition for the growth of mushroom spawn.

12. Short outdoor composting, high moisture content of the manure and supplementing with nitrogen or gypsum all tend to produce a compost that heats better during pasteurizing.

13. Shortening the total composting and pasteurizing time and adding gypsum creates a physical condition that permits raising the water content to an optimum of 65% at spawning time, without the compost being too wet for the spawn to run.

14. Running fans set vertically in the mushroom house during pasteurizing is necessary to bring the temperature of the bottom beds near to that of the top beds and to aid in warming the floors. If the fans are started as soon as the houses are closed the temperature in all beds will increase at a uniform rate.

15. Under moist conditions mites, insects, nematodes, and most of the harmful fungi are eradicated by a temperature of 130° F. maintained for approximately 30 hours, or a temperature of 140° F. for several hours. The truffles disease fungus is the principal exception to this rule.

16. Under dry conditions such serious pests as the yellow moulds and the lipstick mould can survive a temperature 20° F. higher than when wet.

17. Bed temperatures over 145° F. during the last six days of pasteurizing produce a condition in the compost that favours the growth of the *Chaetomium* mould. Lack of ventilation in compost also favours *Chaetomium*.

18. Live steam may be used as a source of heat during pasteurizing without harmful effects provided the temperature is not raised too high and the house or room is adequately ventilated. Also, live steam serves the very important purpose of keeping pasteurizing rooms wet during the pasteurizing period.

19. For killing pests during pasteurizing the temperature of the air is as important as that in the beds since pests on the bed surface or under the bed boards usually are subjected to a temperature nearer to the air temperature than to the bed temperature.

20. During pasteurizing there often are locations in the beds much drier than average and also " cold " areas with temperatures several degrees lower than the average bed temperature.

21. During pasteurizing the temperature of the floor frequently is 10° to 15° F. lower than the air 6 inches above the floor.

22. Since nematodes are more easily killed by heat than some other important pests, such as the yellow and lipstick moulds, the absence of nematodes in the beds after pasteurizing cannot be relied upon to indicate the eradication of all important pests.

23. During composting and pasteurizing the more easily decomposed carbohydrates such as sugars, starches, pentosans, and hemicelluloses decompose more rapidly than cellulose and lignin. Therefore, the proportionate amount of the latter increases as the composting process continues; also the proportion of minerals and microbial proteins to carbohydrates increases with composting and pasteurizing.

24. Each time the compost heap is turned ammonia is produced in large areas of the compost. This also takes place during the first few days of pasteurizing. The excess ammonia is consumed by the micro-organisms in the compost as pasteurizing continues.

25. The optimum concentrations of various mineral salts and organic compounds for the growth of mushroom mycelium have been determined by pure culture studies. But the results of these studies have only limited application to mushroom culture because they do not necessarily apply to the growth of mycelium and the yield of mushroom under the mixed culture conditions that are present in a mushroom bed.

26. At spawning time the reaction of the compost must not exceed pH 8·2 and the moisture content should be approximately 65%.

27. There are at present no other characteristics of the compost that can be analysed to indicate whether it is suitable for growing mushrooms.

I have set down the foregoing list and used the term " principle " with some misgivings, to call attention to the kind of information I believe has been basic to the progressive evolution of our composting and pasteurizing methods. It should be clearly understood that the inclusion of a particular concept in this list merely means that the idea seems logical and acceptable to me and not that it is a proved fact. Concepts of this kind are seldom proved or disproved experimentally. They usually are tried empirically for several years until they are either rejected or generally accepted.

I feel that, in the future, our best chance for progress lies in studies to obtain more information on the significance of high temperature areas in compost heaps and of the changes that occur in nitrogenous compounds during composting and pasteurizing. More empirical experiments are needed on the effect of adding various kinds and amounts of nitrogenous supplements to compost. Meanwhile, we must continue to examine critically our present concepts, recognizing that progress often is seriously delayed by the premature acceptance and perpetuation of beliefs that are later proved to be erroneous.

CONTAMINATION THREAT TO EUROPE'S LARGEST MUSHROOM FARM

Site of Refuse Tip Contested

When an inspector of the Ministry of Housing and Local Government (Mr. J. Sumner) conducted an inquiry regarding the proposed expansion of a refuse tip and utilisation plant, for the disposal of refuse on the Sussex Downs at Halewick Lane, Sompting, he was told by an expert grower, Mr. Fred. C. Atkins, Chairman and Technical Director of Messrs. Noble Mushrooms Ltd., Yaxley, and former Chairman of both the Mushroom Research Association Ltd. and the Mushroom Growers' Association, that the setting up of such a tip and plant would probably jeopardise this branch of the biggest mushroom plant in Europe, and put 105 nurserymen out of work.

The inquiry, in all, lasted four days, and the result will be announced in due course.

The Urban District Councils of Shoreham, Southwick and Portslade joined the Worthing Rural District Council in an appeal against the refusal of the West Sussex County Council to permit the expansion of the tip and the installation of the utilisation plant.

Mr. John McManus appeared for the four Councils, Mr. Harold Brown, Q.C., and Mr. Anthony Harmsworth represented Mr. Jas. A. Linfield and Messrs. A. G. Linfield (Sompting) Ltd., who occupy the appeal site, and Mr. K. F. Goddfellow represented the Lancing Parish Council.

Mr. Harold Brown made it clear early in the hearing that one of his chief points would be that the proposed tip—which would be adjacent to an existing small one put up during the war—might be such a nuisance, with dust and contamination from increased traffic, as to close down his client's mushroom houses and so put 105 men out of work.

He said Linfields mushroom nurseries were one of the biggest in the world. The site concerned in the appeal was the cream of the 266 acres of the Linfield nurseries, and the best producing unit they had.

Mr. McManus said the land was 41·42 acres and it was not proposed to use more than 10 acres at any one time. His case was that the land was not of high agricultural value—but had been heavily fertilised; the proposed use would not greatly change the landscape and that the amenities would in fact be improved by improving the existing refuse plant. The new plant would be for pulverising domestic refuse.

Mr. Eric Voelcker, an agricultural chemist, said he had examined the land owned by Linfields nurseries and formed the opinion that it

MOUNT MUSHROOM SPAWN

Washington,
Pulborough, Sussex.

J. E. R. Simons Ltd.,
Harlow,
Essex.

23rd Feb., 1957.

Dear Sirs,

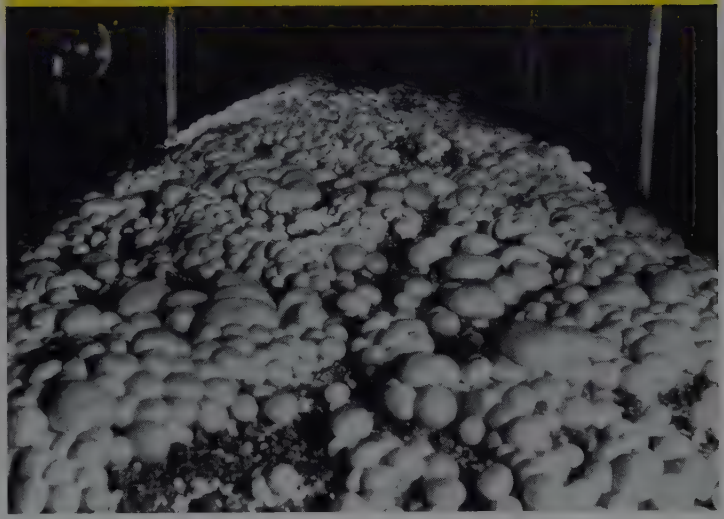
I have great pleasure in sending you this photograph of mushrooms. The spawn is Mount Enve (Grain). It is a first flush, and produced 1 lb. per square foot in seven days. Since then the second flush produced 2/3 and the third flush which is now on looks just as promising. But this is not my first crop that has done so well as this; I have had many which have given me 3 pounds per square foot—and 4 pounds on outdoor ridge beds—all with Mount Enve. My father, Ernest Lee, of Broadwater Lane Nurseries, Copsale, Horsham, has, as you most probably know, the same results.

My compliments to you for producing this strain of spawn.

Yours sincerely,

Cecil Lee.

RELY ON —— THE BEST



MOUNT PURE CULTURE
MUSHROOM SPAWN

Sole
Distributors: J. E. R. SIMONS LTD., HARLOW, Essex
PHONES: POTTER STREET 65, 222 & 223 GRAMS: SIMONS, HARLOW

was poor arable land. He could not give any support to the idea that bacteria would come down from the proposed tip to the glasshouses. The site was ideal for the proposed tip and would afterwards be valuable for grazing stock.

Mr. Fred. C. Atkins, called to give evidence on behalf of Linfield nurseries, said he visited the Linfield nursery last month and had come to the conclusion that the refuse proposal was one that placed the Linfield mushroom nursery in the gravest jeopardy.

Mr. Atkins said growers had to be constantly on guard to keep dust to a minimum. The phorid fly in the Worthing district was notorious. In 1953, it drove many nurserymen out of mushroom growing. If gauze screens were used to keep out flies they quickly clogged with dust. The cost of installation to fight the dust was prohibitive.

It was beyond question that rubbish bred disease and flies. A refuse dump would be most undesirable near a nursery.

The proposal before the inquiry would mean a major increase in traffic and a dusty road. It would lead to such pollution that mushroom growing might become impossible.

Mr. Atkins said in an answer to questions, that Worthing was definitely the third largest area in the world for mushroom growing; it had been said that it was the second largest. The phorid fly he mentioned was not the seaweed fly. A résumé of the final stages of the hearing will be given in the July issue of the *Bulletin*.

PUBLICITY PAPER BAGS

All United Kingdom Grower Members of the Association should, by now, have received 500 publicity paper bags for distribution during the second week in June, together with a pre-paid post card order form.

By placing one bag and a post card in each chip of mushrooms consigned either to the normal wholesale market or to a retailer with whom you may deal direct, a wide sales coverage should be obtained. It has been found that many local fruit and vegetable distributors also sell paper bags to their customers and it would be most valuable if you could persuade any such distributor to either sell our bags direct or to distribute a bag and a card to their trade customers.

The Publicity Sub-committee feel quite sure that the co-operation of all members in this important campaign can be relied on to the full.

Members are asked to note that repeat orders for these bags are carriage free on orders of £5 and over and not on orders of 5,000.

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EIRE MUSHROOM EXPORTS TO U.K. UP

Sharp Increase over 1955 figure

Figures made available by the Ministry of Agriculture show that, in 1956, imports of cultivated mushrooms from Eire rose by no fewer than 231,504 lb. representing an extra cash return to growers, less transport costs, of £38,705. Total amount of Eire mushrooms imported last year was 1,012,368 lb., against 780,864 lb. in 1955.

For several years past increased supplies of mushrooms have been sent to this country from Eire. In 1954, the increase totalled 12,768 lb. but lower prices sent the total value of these imports for that year down by £4,357. In 1955, the increase was 68,928 lb. and the return to growers (less transport charges) went up by £8,927 to £119,535. The total figure for these imports in 1956 was raised to £158,240, this 1956 increase being by far the heaviest recorded in recent years. It may well be a record increase. Growers in the United Kingdom are aware that Eire mushrooms are admited to this country free of any import duty. The price return average of 3·1 shillings per lb. is therefore, the price paid by the salesmen handling Eire mushrooms. To arrive at the net return to growers the costs of carriage, which averages 3d.—3½d. per lb. by air from Dublin for instance, would have to be deducted plus any additional carriage to the airport.

The importation of French mushrooms, on which a duty is payable, was up slightly in 1956, by 2,128 lb. following the drop of 12,097 lb. in 1955, and the heavier drop of 24,416 lb. in 1954.

U.K IMPORTS OF MUSHROOMS, 1956

CWT.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
Irish Republic	939	639	890	863	903	796	699	459	636	966	776	473	9,039
France ..	25	29	26	24	26	23	21	23	19	28	23	28	295
Total Monthly	964	668	916	887	929	819	720	482	655	994	799	501	1,204
1955 ..	510	548	597	769	544	651	676	524	564	520	613	732	7,248

£

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
Irish Republic	16,756	11,505	15,657	15,011	14,874	13,900	11,834	7,654	10,873	17,811	13,939	8,426	£158,240
France ..	455	502	475	449	509	454	396	403	385	529	452	458	£5,467
Total Monthly ..	17,211	12,007	16,132	15,460	15,383	14,354	12,230	8,057	11,258	18,340	14,391	8,884	£163,707
1955 ..	8,335	9,472	10,781	13,937	9,985	12,194	11,773	8,060	9,053	8,060	10,553	12,359	£124,562

Irish Republic Averaged 3.1s. per lb.

France Averaged 3.3s. per lb.

FARM WALK

Saturday, 20th July, at Combe Bank Market Gardens, Sundridge, Sevenoaks, Kent, at 3 p.m.

The CULVERWELL Manure Turner

FOR MUSHROOM GROWERS

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The amusing correspondence and verse which we reproduced in last month's issue, following an advertisement for "Female mushroom pickers" has persuaded **Robert Patterson** (*Monlough Food Production Co., Ballygowan, Belfast*) *to pen the following.*

ON THIS VEXED QUESTION OF MUSHROOM GENDER

A child perplexed and sorely worried
Off to his female teacher hurried,
On this vexed question of mushroom gender
Would you a satisfactory answer render?

'Tis strange how poetry can trigger
Off a subject that is much bigger
Than other mushroom topics that we meet,
Such as bubble, flies or yields per square feet.

Please do not let them teacher
Know, if she is female, how to reach 'er
Cos man's habit of shady cultivation
Would lead to much untold temptation.

It is because there is this doubt
That mushrooms' charms aloud we shout
And if our publicity is to continue serious
We must retain a little of the mysterious.

It is claimed by some that she is female
And others say "No! it must be male."
But whether it is female, male or neuter
Teacher must decide or else we'll shoot 'er.

We can't go on like this for ever,
But if someone should e'er prove so clever,
Let him decide whether buttons, cups or flats
Should then be renamed busts, curls and hats.

ROYAL SHOW—NORWICH

The MGA has entered for "The Grower" competition for prepacks which is to be held in conjunction with the NFU Market Produce Society Ltd., at the Royal Agricultural Show, Norwich, from 2nd to 5th July inclusive.

In order to present as wide a variation as possible in the matter of colour—bearing in mind that mushrooms, in themselves, are not as colourful as some produce which will be on display—it is most important that as much colour as possible should be introduced in the prepack carton itself. With this end in view will any member using prepacks and willing to supply cartons (arrangements have been made to pack the mushrooms at the show) send a sample carton direct to Major A. L. A. Dredge, Combe Bank Market Gardens, Sundridge, Sevenoaks, Kent (Tel.: Brasted 335) who is arranging this display and who will decide if any particular carton will conform to the colour scheme he has in mind.

PUBLICITY SUBSCRIBERS
1957 LIST

Salesmen:—	£	s.	d.
Francis Nicholls Ltd., Smithfield Market, Birmingham	157	10	0
R. E. Jenkinson Ltd., Covent Garden Market, W.C.2	105	0	0
T. J. Poupart Ltd., Covent Garden, London, W.C.	100	0	0
Dan Wuille & Co. Ltd., Covent Garden Market, W.C.2	50	0	0
Wm. Artindale & Son Ltd., Castlefolds Market, Sheffield	21	0	9
J. Collingridge Ltd., Covent Garden Market, W.C.2	25	0	0
Geo. Jackson & Co. Ltd., Smithfield Market, Birmingham	5	5	0
Ed. H. Lewis & Sons Ltd., Covent Garden Market, W.C.2	5	5	0
A. E. Phippen (Brentford) Ltd., Brentford	5	5	0
C. Snowdon & Co. Ltd., Castlefolds Market, Sheffield	14	11	8
Marks & Co. Ltd., Covent Garden, London, W.C.	1	1	0
J. Stratton Ltd., Salesmen, Spitalfields Market, London, S.E.1	5	5	0
Mitchell Bros. (Andover) Ltd., Salesmen, Vigo Road, Andover	2	2	0
Sir Ernest Shentall Ltd., Salesmen, Chesterfield, Derby.	2	2	0
Herbert Hitchcock & Son Ltd., Salesmen, Boro' Market, S.E.1	5	5	0
Wm. Morgan & Co. Ltd., Salesmen, Custom House Street, Cardiff	10	10	0
Ernest White Ltd., Salesmen, Kirkgate Market, Leeds	5	0	0
Jas. Blackburn (Manchester) Ltd., Salesmen, Smithfield Market, Man.	10	10	0
C. W. Tooley & Son Ltd., Salesmen, Nottingham	2	2	0
Wm. Tolley & Son Ltd., Wholesale Market, Nottingham	2	2	0
G. E. Leatherland Ltd., St. Andrew's Street, Newcastle-on-Tyne	66	16	6
Geo. Stansell Ltd., Spitalfields Market, E.1	10	10	0
Barnes Bros. (Brentford) Ltd., Brentford	5	5	0
P. & T. Fitzpatrick Ltd., 22 Queen Square, Liverpool 1	5	5	0
Wm. Bulman & Leatherland Ltd., 30 St. Andrew's St., Newcastle-on-Tyne	5	0	0
Jackson & Lakin Ltd., Nottingham	3	5	6
Reuben Levy Ltd., 88 Spitalfields Market E.1	6	18	6
Sundriesmen, etc.:—			
Thomas Elliott Ltd., Eagle Mills, New Church Road, S.E.5	10	10	0
Shirley Organics Ltd., Vicarage Wharf, Battersea, S.W.11	25	0	0

***Spawn Makers/Merchants:—**

H. Mount & Sons Ltd., Littlebourne, Canterbury.
W. Darlington & Sons Ltd., Southcourt Road, Worthing.
Monlough Food Production Co. Ltd., Ballygowan, Belfast.
S. A. F. Sampson Ltd., Oving, Chichester.
Geo. Monro Ltd., Hertford Road, Waltham Cross.
Pinkerton's Scottish Mushroom Laboratories, Millerston, Glasgow.
Agricultural & Chemical Co. Ltd., 51 Barbican, London, E.C.1.

*Amounts collected by Spawn Merchants are not for publication.

MGA MEMBERS VISIT DUBLIN

Meeting with Eire Prime Minister, Mr. De Valera

About 25 members of the MGA joined in a farm walk which took place at Irish Nurseries Ltd., Kimmage Road West, Dublin, on Saturday, 25th May, and, on Monday afternoon, were received at Government House where they met the Eire Prime Minister, Mr. De Valera, still by far the most colourful figure in Irish politics.

At the farm walk, attended by growers from various parts of Eire in addition to those from the United Kingdom, those present included Mr. F. Aiken, Minister of External Affairs and, until a few days before, Acting Minister of Agriculture.

In the evening, following the farm walk, a dinner was held at " The Dolphin." On Sunday there was a tour of the Dublin Hills followed on Monday with a visit to one of the peat bogs operated by Bord na Mona (Irish Peat Board).

In all about 60 people attended the farm walk and were welcomed by the head of Irish Nurseries Ltd., Mr. Roy Groom, who explained at the outcome that he hoped visitors would pay particular attention to the air conditioning and the electrical installations in general, all the work in connection with which had been carried out by his younger brother, Mr. Derek Groom. The new houses on the nursery had been built with farm labour.

The basic area of mushroom growing extends to 70,000 sq. ft. all on the tray system and nine new houses measuring 80 ft. × 20 ft. each, accommodate 5,000 sq. ft. of tray beds. The farm works on a nine week schedule (six weeks picking) and five and a half crops are taken each year with an average yield of 1½ lb. per crop. Horse manure is the basis of the compost. It is allowed to stand in the stack, thoroughly watered, for about a week and is turned at least three times within the following week. Spawning is at 70° F. and growing temperature is maintained at 55—58° F. Polythene tubing is now in use for air conditioning.

The notion that production costs in Eire are very low is somewhat dispelled by the fact that the minimum basic wages per man are between £5 and £6 but the average wage taken is about £8. Good heavy horse manure costs £3 per ton at the stable whilst light racing stable manure from the Curragh costs £1 per ton to which the 30-40 mile haul into Dublin has to be added.

After the farm walk, tea was provided by Mr. Groom, who introduced Mr. Aiken, and who was afterwards thanked by the MGA Chairman, Mr. Allen.

Mr. Groom and some of his fellow nurserymen provided cars for the tour on Sunday and again for the visit to the peat bog on Monday.

Mr. P. Brenden Clarke, Secretary of the Agricultural Association of Ireland was with the party throughout the week-end. He and Mr. Groom together with Mr. Allen and the MGA Secretary were present at a private meeting with Mr. De Valera on Monday, before he met the main party at Government House.

MGA MEMBERS IN DUBLIN MEET EIRE PRIME MINISTER

L. to R. W. R. Alderton (MGA Secretary), Mr. De Valera, G. V. Allen of Bilting Nurseries, Ashford (MGA Chairman) and R. Groom (Irish Nurseries Ltd.)

MGA Members on the steps of Government Buildings, Dublin, before meeting Mr. De Valera.

LAST MONTH'S PUBLICITY CONTRIBUTIONS

Stepping into the list of those who contribute to the MGA Publicity Fund is the firm of **Stable Manures Ltd., of Newmarket and Worthing,** who have sent a welcome contribution of £60 to the fund. The regular support of spawn distributors and salesmen continues.

Latest list:—

	£	s.	d.
Stable Manures Ltd., Manure Dealers, Newmarket and Worthing	60	0	0
***C. Snowdon & Co. Ltd.,** Salesmen, Sheffield	3	11	9
Reuben Levy Ltd., Salesmen, Spitalfields Market, E.1	1	10	8

†***S. A. F. Sampson Ltd.,** Spawn Merchant, Oving, Chichester

†***Monlough Food Production Co.,** Spawn Merchants, Ballygowan, Belfast.

*Previous contributions already acknowledged.

†Amounts collected by spawn merchants are not for publication.

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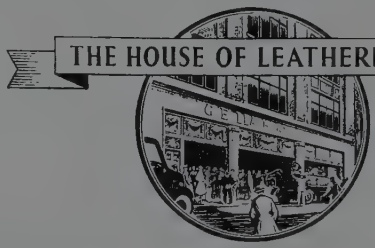

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(Zineb)

For dusting use 8-12 oz. per 1,000 sq. ft. Apply after casing and give 2 further dustings between breaks. Alternatively use 4 oz. per 1,000 sq. ft. for regular weekly applications.

7 lb. £1 6. 3, 14 lb. £2 10. 2, 28 lb. £4 15. 8, 56 lb. £9 2. 0.

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FIBREGLASS Bitumen Bonded—10 yard rolls 36″, available from stock. J. E. R. SIMONS LTD., Harlow, Essex.

NOTTINGHAM Company require mushrooms urgently. Write for managing director to visit you. Box No. 5.

PALLETS, 150 two-way entry non-reversible size 56″ × 38″, 7″ wing on top deck, with clearance from ground of 7″, screwed construction in Swedish imported softwood. Apply Box 7.

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